



National Aeronautics and  
Space Administration  
**Lyndon B. Johnson Space Center**  
Houston, Texas



## Emergency response

Drills, improvements around JSC prepare emergency teams for all types of potential mishaps. Story on Page 3.



## That time of year

The Emergency Preparedness Office give tips for the 1996 hurricane season that begins June 1. Story on Page 5.

# Space News Roundup

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## Astronauts complete 'grand slam'

Four rendezvous in one flight sets shuttle-era record

After successfully demonstrating a second technological marvel and completing a record fourth rendezvous on the same flight, the crew of the Space Shuttle *Endeavour* glided to Earth early Wednesday.

The 10-day-long mission featured 21 hours of precise formation flying with the Spartan 207 and PAMS-STU satellites, as well as an invitation to tea on the Mir Space Station "since you're in the neighborhood."

*Endeavour* touched down on Runway 33 at Kennedy Space Center at 6:09 a.m. CDT Wednesday. Commander John Casper, Pilot Curt Brown and Mission Specialists Andy Thomas, Dan

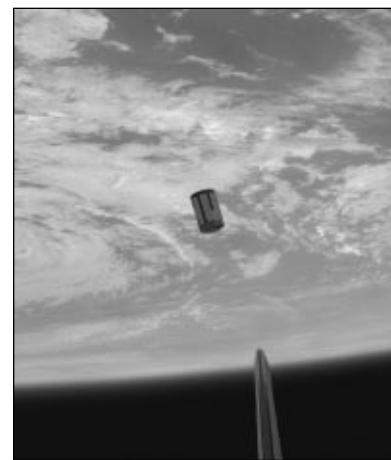
Bursch, Mario Runco and Marc Garneau were welcomed home at Ellington Field later that afternoon.

The fourth rendezvous with a trash can-sized Satellite Test Unit took place on Memorial Day as scientists—testing whether they could keep a satellite properly aligned using weights and magnets rather than propellant—were rewarded with a good laser lock.

"It was a fantastic day. We saw a satellite that was aerodynamically stabilizing," said Linda Pacini, pro-

ject manager for the Passive Aerodynamically Stabilized Magnetically Damped Satellite. "They (the crew) said it was rock solid."

Four hours of precise laser measurements, which had not been achieved on the first two rendezvous with PAMS-STU, gave the scientists a third data source to add to the radar and video data collected on all three approaches. The laser imaging system was the most accurate data source for validating the aerodynamic stabilization process.



The Satellite Test Unit, part of the Passive Aerodynamically Stabilized Magnetically Damped Satellite is seen moments after its ejection from the cargo bay of *Endeavour*.

## Blood drive breaks all records

JSC employee's responded in a big way last Thursday to the Onsite Blood Drive at Teague Auditorium.

In all, 300 employees donated whole blood, platelets and plasma—an all time high for the JSC program and nearly a six-fold increase over the January blood drive.

"The response was overwhelming," said event coordinator Dan Mangieri of the Human Resources Office. "I think it demonstrates the potential for JSC employees to make a difference in the community."

The big turnout was especially important in light of the Memorial Day holiday weekend, when blood supplies are typically in high demand and short supply.

"Words cannot express the importance of this response by JSC employees," said Stephanie Logsdon, manager of St. Luke's Volunteer Blood Donor Program. "St. Luke's had a heart transplant this weekend and implanted a heart assist device in another patient. Every platelet donated at the JSC Onsite Blood Drive was used and more than half of the whole blood donations have already been used in support of the hospital's patients."

Recent efforts to revitalize and promote JSC's Onsite Blood Drive focused on implementing several changes to the program, primarily aimed at making it more convenient to become a blood donor. Moving the Blood Drive to Teague Auditorium and keeping it open during lunch along with forming a committee dedicated to helping publicize the Blood Drive helped improve the number of donations received, Mangieri said. Donors also received free T-shirts, which seemed to provide an extra incentive. Many of the changes were the result of suggestions from employees who had been involved in past blood drives.

"This is an example of how examining a process and making changes by involving those closest to it—in this case the blood donors themselves—can have a tremendous impact on the overall success," Mangieri said.

The program promises additional adjustments for the next blood drive, scheduled for Aug. 15. Lessons learned from this blood drive include expanding screening stations to reduce waits. JSC organizers and St. Luke's thanked all the blood donors and others who helped organize the effort. Without them the big turnout would not have been possible, they said.



JSC Photos by Benny Benavides and Mark Sowa

Above: Bill West of Rockwell International carries the Olympic torch through the streets of Houston. Left: West and Paula Vargas of Taft Broadcasting were selected to carry the torch for one kilometer in Houston as it makes its way to the 1996 Summer Olympic games in Atlanta. The two JSC employees were chosen for the history-making opportunity because of their voluntary contributions in the community.

## JSC tunnel system gets extensive rehabilitation

JSC's underground tunnel system is undergoing extensive renovation to improve utility distribution and provide a safe environment for employees who must work on the system.

"The underground tunnel has provided housing for the distribution of critical utilities and communications at JSC for 33 years," said Jim Hickmon, director of Center Operations. "The three and a half mile tunnel is undergoing a much needed rehabilitation."

The three-phase tunnel rehabilitation project, managed by Center Operations, began in 1995 and will be completed by the year 2000 at the cost of approximately \$14 million. The Phase I activity now in work focuses on improved ventilation, emergency/exit lighting, fire detection, emergency communications, electrical repairs, asbestos

abatement, structural repairs, steam pipe repair and replacement, as well as upgrading access and egress.

"Air intake pipes and large excavation sites have popped up at various locations around site," said Steve Campbell, project engineer for the tunnel rehabilitation project. "These are all a part of the new ventilation system for the tunnel."

The follow-on phases will complete structural repairs, upgrade critical utilities, remove unused and excess cable and provide redundancy for critical functions. The overall project is designed to provide JSC with a functional and reliable utility distribution system that can efficiently support current and future programs and meet life safety standards. For more information on the tunnel rehabilitation project, call Campbell at x33200.

## Mir cosmonauts prepare station for more power

By Karen Schmidt

The Mir 21 cosmonauts conducted three space walks over the past 10 days to improve power and install science experiments outside the Russian Mir Space Station.

Mir 21 Commander Yuri Onufrienko and Flight Engineer Yuri Usachev were expected to venture outside Mir Thursday to attach German scientific experiments while Cosmonaut Research Shannon Lucid remained inside Mir to monitor the two space walkers.

Last Friday, the two cosmonauts spent six hours unfurling a solar array built jointly by the U.S. and Russia which was brought to Mir on STS-74 last November. Onufrienko and Usachev worked together to install six Y-connectors and unfurl more than 30 solar panels. The array is working perfectly and the only problems reported were the size of the arrays and the position in which the crew members had to work to crank the array open.

"The EVA was pretty exciting," Lucid said during a crew news conference Tuesday. "The thing that struck me when Yuri and Yuri went out and did their EVA was how big the station is. The first time I saw Yuri way out on that long pole and going out across nothing my heart went up in my throat."

A cargo boom or strela—attached to the core module—is used by the Russians to transfer equipment and people from one module to the next across the expanse of space without having to return to the core module.

Usachev mounted the solar array on the station's Kvant-1 module during a six-hour space walk last week. The procedure required the two space walkers to remove the array from the Docking Module where it had been stored and transport it to the Kvant-1 module. Onufrienko and Usachev positioned the array's cables so everything would be ready for the deployment.

Meanwhile, Lucid's research continues with the majority of the work taking place in the Priroda module.

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JSC Photo by Robert Markowitz

Gardner-Zemke employees set forms for an air exhaust structure as part of the tunnel rehabilitation project. The first phase of the \$14 million renovation includes improving ventilation with air intake pipes. Other upgrades include lighting, fire detection, emergency communications, electrical repairs, asbestos abatement and structural repairs.